BY ORDER OF THE COMMANDER
913TH AIRLIFT WING

913th AIRLIFT WING INSTRUCTION 91-302

25 August 1999

Safety

CONTROL OF HAZARDOUS ENERGY PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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OPR: 913 AW/SE (Lt Col Kevin Shinsky)
Supersedes 913 AWI 91-302, 15 March 1997

Certified by: 913 AW/SE (Lt Col Kevin Shinsky)
Pages: 6
Distribution: F

This instruction implements Air Force Policy Directive 91-3, incorporating the Air Force Occupational Safety and Health (AFOSH) Standard 91-45, 29 CFR1910.147 and 29CFR 1910.333(b). It establishes the Commander's Control of Hazardous Energy Program as required by law. This instruction applies to all employees stationed at Willow Grove Air Reserve Station, Pennsylvania.

SUMMARY OF REVISIONS

The revision reflects added recommendations from OSHA. A (|) indicates revisions from the previous edition.

1. Application. This program establishes safe, uniform Lockout/Tagout procedures for the servicing and maintenance of equipment and machines as required by AFOSH Standard 91-45 and 29CFR1910.147 and 29CFR1910.333(b). Compliance with this program is mandatory.

2. Scope. This program applies to all personnel, including DOD civilians and military members, performing service and/or maintenance on machinery or equipment at Willow Grove ARS.

2.1. Contractors working on this installation must have their own Lockout/Tagout program. Contractor compliance with 29CFR1910.147 and 1910.333(b) is inherent in the statement of work.

2.2. When working on military specific equipment, the applicable Technical Order shall be followed. Air Force Technical Orders contains OSHA and specific safety procedures as determined by the Department of the Air Force. Compliance with AF Technical Orders is mandatory.

3. Definitions :

3.1. Energy Isolating Device: A physical device that prevents the transmission or release of energy, including, but not limited to, the following: A manually operated electrical circuit breaker, a discon-

nect switch, a slide gate, a slip blind, a line valve, blocks, and similar devices with a visible indication of the position of the device. Push buttons, selector switches, and other control circuit type devices are not energy isolation devices.

3.2. Energy Source: Any electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal, or other energy source that could cause injury to personnel.

3.3. Hazard Identification: For the purpose of this program, hazard identification refers to signs or tags that warn, caution, or inform personnel of hazardous condition.

3.4. Lockout Device: A device that utilizes a lock and key to hold an energy isolating device in the safe position for the purpose of protecting personnel.

3.4.1. Locks are to be individual to each worker performing work on the equipment or machine. No master locks or combination locks are to be used.

3.5. Tagout Device: A warning device which is capable of being securely attached to an energy isolating device and that, for the purpose of protecting personnel, forbids the operation of the equipment being controlled until the tagout device is removed.

3.5.1. Tags are essentially warning devices and do not provide the physical restrain that is provided by a lock.

3.5.2. Do not remove, bypass, ignore or defeat the tag without authorization from the employee who applied the tag.

3.6. Affected Employees: Persons required to service or maintain equipment that are subject to lockout/tagout procedures.

3.7. Authorized Employees: Persons required to service or maintain equipment that are subject to lockout/tagout procedures.

3.8. Fixed Equipment: Equipment fastened in place or connected by permanent wiring methods.

3.9. Exclusive Control: When an employee has an item in eyesight or on hand.

4. Responsibilities. To have an effective Lockout/Tagout Program, management must support and enforce the program.

4.1. Commanders, Functional Managers, and Section Supervisors, and each employee shall comply with the requirements of this regulation.

4.2. Each section supervisor shall ensure that required locks, lockout hasps and “Out of Order” Tags (AF Form 981) are available for issuing to employees when required.

4.3. Each work center supervisor shall ensure that all powered equipment within their section is equipped with lockout/tagout capabilities. Supervisors will identify specific shop equipment that requires lockout/tagout and identify authorized and affected employees. Supervisors shall develop a work center specific lesson plan for their lockout/tagout program within their shop.

4.4. Each shop supervisor will provide specific Lockout/Tagout procedures for their shop areas to the Wing Safety Office.

5. General Procedures :

5.1. Before any employee performs service or maintenance on power production equipment, the individual performing the work must first obtain permission from the supervisor.

5.2. Supervisors or Authorized employees will notify the affected employees of the application and removal of lockout and tagout devices. Notify the affected employees of the application before applying the controls and after removing them from the machine or equipment.

5.3. Before shutting down the equipment, the authorized employee shall review lockout/tagout procedures for the type and magnitude of energy, the hazards of the energy, and the methods or means to control the energy for that piece of equipment.

5.4. Turn off and shut down the machine or equipment using the procedures for the machine or equipment.

5.5. An authorized employee will apply a lockout or tagout device to each energy isolating device. The lockout device will physically isolate the machine from the energy source(s). Each employee will use their own lock and retain possession of the key to their own lock. No individual will work under another individuals' lock or under another work center's lock.

5.5.1. Lockout devices will hold the energy isolating devices in a "safe" or "off" position.

5.5.2. Tagout devices will be fixed to clearly indicate that the movement of energy isolating devices from "safe" or "off" position is prohibited.

5.5.3. Where tagout devices are used with energy isolating devices designed with capability of being locked out, the tag will be attached at the same point as the lock.

5.5.3.1. If a tag can not be fastened directly to the energy isolating device, the tag will be fixed as close as possible to the device so that it will be immediately obvious to anyone attempting to operate the device.

5.5.3.2. If performing work on cord and plug equipment, use lock-a-plug boxes. A lock-a-plug box is not mandatory if the employee has exclusive control of the plug.

5.6. Stored Energy and Verification of Isolation.

5.6.1. Following the application of lockout or tagout devices, all potentially hazardous stored energy shall be relieved, disconnected, restrained and otherwise rendered safe.

5.6.2. Authorized employees shall verify that isolation and deenergization of the machine or equipment have been accomplished prior to starting work on equipment that has been locked out or tagged out.

5.6.3. Make sure the machine cannot be set in motion or energized by carefully attempting to turn the power on and trying the controls.

5.6.4. CAUTION: Return the operating controls to the neutral (off) position after the test.

5.6.5. Place safety blocks, mechanical locking arms, pins, etc. in position to prevent unintended or unexpected motion.

5.6.6. If stored energy has the possibility to reaccumulate to a hazardous level, verification of isolation will be continued until the maintenance or service is completed, or the possibility of accumulation not longer exists.

6. Working On or Near Exposed Deenergized Parts. This section applies to work on exposed deenergized parts or near enough to them to expose the employee to any electrical hazard they present. Follow these procedures, in order, when working on or near exposed deenergized parts.

6.1. While an employee is exposed to parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked or tagged. Push buttons, selector switches, and interlocks may not be used as the sole means for deenergizing circuits or equipment.

6.2. Disconnect all electric energy sources from the circuits or equipment to be worked on.

6.3. Release all stored electric energy, which might endanger personnel. Discharge capacitors. Short circuit and ground all high capacitance elements.

6.4. If the capacitors or associated equipment are handled, they shall be treated as energized.

6.5. Block or relieve stored non-electrical energy devices that could reenergize electric circuit parts. This will prevent the circuit parts from being accidentally energized by the devices.

6.6. Apply lock and tag on each disconnecting means used to deenergize circuits and equipment on which work is to be performed. The lock shall be attached to prevent a person from operating the disconnect without resorting to undue force.

6.7. Each tag will contain a statement prohibiting unauthorized operation and removal of the tag.

6.8. If a lock cannot be used, a tag may be used providing it gives a level of safety equivalent to that of a lock.

6.9. A tag used without a lock shall be supplemented by at least one additional safety measure. Additional safety measures include the removal of an isolating circuit element, clocking of a controlling element, blocking of a controlling switch, or opening an extra disconnect.

6.10. Make sure the machine or equipment cannot be set in motion or energized by carefully attempting to turn the power on and trying the controls.

6.10.1. CAUTION: Return the operating controls to the neutral (off) position after the test.

6.10.2. Use a voltmeter to verify that the circuit elements and equipment parts to which employees will be exposed to are deenergized.

6.10.3. Determine if any energized condition exits as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe.

6.11. Reenergizing equipment: Follow these requirements, in order, before circuits or equipment are reenergized, even temporarily.

6.11.1. A qualified person shall conduct tests and inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other devices have been removed, so that the circuits and equipment can be safely energized.

6.11.2. If exposed to hazards associated with reenergizing the circuit or equipment, stay clear and warn others to stay clear of the circuit and equipment.

6.11.3. The employee who applied the device will remove each lockout or tagout device.

6.11.4. To remove a lock or tag when the employee who applied the tag is not present, follow paragraphs 8.0 through 8.2.

6.11.5. Perform a visual check to make sure all employees are clear of the circuits and equipment.

6.11.6. Reenergize the circuit or equipment.

7. Removing Lockout or Tagout. Before removing lockout or tagout devices and restoring energy, authorized employees will follow these procedures.

7.1. Inspect the area to ensure that nonessential items are removed and that the equipment components are operationally intact.

7.1.1. All employees shall be safely positioned or removed from the work area.

7.1.2. Inform affected employees, after lockout or tagout devices have been removed and before the equipment is restarted, that the lockout or tagout devices have been removed.

7.2. The employee who applied the device will remove the lockout or tagout device.

8. Removing Lockout or Tagout When The Applying Employee is Not Present:

8.1. If a lockout or tagout device is left on an energy isolating device after the owning employee leaves work, a supervisor may remove the lock after making all reasonable efforts to contact the employee who left the lock or tag in place.

8.2. The employee who left the lock or tag on shall be notified of the removal by the supervisor before they resume work on the machinery or equipment.

9. Testing or Positioning of Machines or Equipment. If the lockout or tagout devices must be temporarily removed and the machine or equipment energized to test or position the machine, the following procedures shall be followed.

9.1. Inspect the area to ensure that nonessential items, tools and extra parts, are removed and that the equipment components are operationally intact.

9.2. All employees shall be safely positioned or removed from the work area.

9.3. The employee who applied the device will remove the lockout or tagout device. Inform affected employees that lockout/tagout devices have been removed after the devices are removed and before the machine or equipment is started.

9.4. Energize the equipment and proceed with the testing or positioning.

9.5. Deenergize all systems and reapply the energy control measures. Follow paragraphs 5.0. thru 5.6.6.

10. Shift or Personnel Changes :

10.1. If the job is not completed by the end of the shift the supervisor shall be notified.

10.2. The supervisor’s lock will be applied to the energy isolation device to replace the lock of employees going off work to ensure lockout continuity.

10.3. An employee coming to work may use his/her lock to replace the lock of the employee going off work after a complete briefing of the job status and approval by the supervisor is completed.

11. Energy Control Procedures Audit :

11.1. Each work center supervisor will audit the lockout/tagout procedures for their work center every six months.

11.2. The Wing Safety Office will audit the energy control procedures annually for each type of isolated energy.

11.3. The audit shall determine whether employees knew their responsibilities under the procedure, whether the procedure was adequate to provide the necessary protection, and if any changes are needed.

11.4. The audit shall contain the identification of the machine or equipment, inspection date, employees included, and the person performing the inspection.

12. Training. Training shall ensure that all supervisors, authorized and affected employees understand the purpose and function of the energy control program and have the knowledge and skills required for the safe application, usage and removal of the energy controls.

12.1. Authorized employees shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.

12.2. Affected employees shall be instructed in the purpose and use of the energy control procedures.

12.3. The Safety Office will provide initial training.

12.4. Supervisors will provide shop specific training for their work centers.

12.5. Retraining is required at least annually and whenever there is a job change, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedure. Retraining is also required when inspection reflects deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

12.6. Initial Lockout Tagout training will be documented on AF Form 55. Refresher training may be documented on AF Form 55 or by other means approved through the Safety Office.

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